

### ABSTRACT OF THE DISCLOSURE

5       A high pressure chamber comprises a chamber housing, a platen, and a mechanical drive mechanism. The chamber housing comprises a first sealing surface. The platen comprises a region for holding the semiconductor substrate and a second sealing surface. The mechanical drive mechanism couples the platen to the chamber housing. In operation, the mechanical drive mechanism separates the platen from the chamber housing for loading of the semiconductor substrate. In further operation, the mechanical drive mechanism causes the second sealing surface of the platen and the first sealing surface of the chamber housing to form a high pressure processing chamber around the semiconductor substrate.